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*building  
industry and world-wide markets  
for Georgia*

**THE GOVERNOR'S  
CONFERENCE  
ON TRADE  
& COMMERCE**

*May 21-23, 1961*



# GEORGIA FORWARD!

This issue of the Atlanta Economic Review is dedicated to the state of Georgia—to her resources, her present, and her great potentials; to her adaptation of materials and abilities to her needs, to her contribution to the nation, and to her possibilities for trade and commerce in the world arena. Not all of the state's affluence can be presented in this one issue, but some of her basic assets, discussed by informed and forward-thinking men, symbolize the challenge facing Georgia—the challenge of full utilization of resources, both human and material, for growth and development in fulfilling her destiny.

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*industry*

*Penn Worden, Jr.*

*(Mr. Worden is industrial manager of the Georgia State Chamber of Commerce.)*

# BRIGHT INDUSTRIAL HORIZONS FOR GEORGIA

Georgians have learned the disquieting news of late that state industrial progress has flagged in the last several years after the southeastern parade in the postwar decade. Of a number of responsible factors, the slowdown can be attributed primarily to the increasingly intensive competition for new plants.

While the number of new plants located each year (\$7 billion in plants and equipment) has remained relatively static—perhaps even decreased slightly—the number of communities and areas zealously soliciting new industry has skyrocketed. More talent, more manpower, more money has been thrown into the scramble for new payrolls from every part of the nation. What were good programs, good techniques, several years ago are no longer good enough.

## **Georgia's Fixed Assets**

Despite the setback suffered, we should not infer that Georgia has "missed the boat" on its industrial opportunities. Our assets and advantages for new industry remain as fixed as ever! The situation is simply that local and statewide leaders must regroup their forces, come up with fresh plans of attack, and launch new sales campaigns with redoubled vigor.

What are some of these unchanging industrial assets that still await the discerning manufacturer? A few, of course, are obvious, such as our mild climate, pivot location for serving the Southeast, ample utilities at attractive rates, and exceptional air, rail, water, and motor freight transportation. Some, less widely known, require more sales effort. They include: productive, adaptable, loyal labor available in hundreds of towns; a score of minerals available in commercial quantity, but as yet undeveloped; rich agricultural resources with potential for industrial application; stable, conservative government with a tradition of businesslike operation; a reasonable tax structure, neither confiscatory nor a barrier to improvements; outstanding research and experimental facilities at Georgia institutions; and an increasing force of technically-trained graduates from our colleges and vocational schools (for example, nearly 2,000 engineers graduate each year from colleges within 200 miles of Atlanta).

Proper merchandising of such assets into national

manufacturing circles is far more involved than simply producing appealing literature or catchy advertising in national media. It takes more—dramatic projects, such as the State Chamber's "Red Carpet" aircade for manufacturers, or the solicitation in New York by a 30-man team. Essential inventorying of resources, expert market analyses, and training of potential employees must be intensified to back up such sales efforts. Expanded field research by Georgia Tech's Industrial Development Branch and more than a dozen new vocational schools on the way are already moving to bridge these gaps. Georgians in every capacity must do their part in staying alert for industrial leads, in promoting the state among those with whom they come in contact—in short, doing all within their power to disseminate the proper "image" of Georgia.

Granted we can and will take these necessary steps, in what fields is our industrial development most likely to come?

### Fields of Industrial Development

**Breeder industries.** One group of probable development should include basic or "breeder" industries of several types such as: basic metals plants with new processes for reducing Georgia or imported ores; oil refineries which use crude oil from the Middle East or from our own as yet undiscovered deposits which are energetically hunted today; and pipeline stripping stations which can create a whole new complex of satellite petrochemical plants.

**Plants based on present "service-type" industry.** Another much larger classification would encompass the "service" type of factory that produces components or equipment for an industry concentration. Among services of this type in operation in the state are the pulp-paper industry (20 per cent of the nation's production comes from the area forming a crescent between Augusta and Mobile); the chenille industry, centered in Northwest Georgia; the broiler industry in Northeast Georgia; mining in the northern and central areas; naval stores in the southeastern part of the state; and transportation equipment in the Metropolitan Atlanta area.

Extensive food, textile and apparel manufacturing in the state afford additional "service" plant opportunities. Under way at present is a study by the Bureau of Business Research of the University of Georgia to determine products for which Georgia industry and distributors provide a major market, and thus justify in-state manufacture.

**Furniture and wood-using industries.** Record home building in Georgia, Florida, and adjacent states; our heavy lumber output; and the impact of Atlanta's new Merchandise Mart combine to enhance opportunities for furniture and other wood-using industries here. In the

face of competition, nationwide distribution of furniture from a single plant is unrealistic, and decentralization is on the upgrade in this industry.

**Assembly and metal fabrication.** Some of the same economic considerations increase the chances for landing more assembly and metal fabrication plants in our area. Metalworking skills are more prevalent in Georgia than is generally recognized, and more effort should be made to capitalize on this fact.

**Chemicals.** Georgia's expanding waterways system and mushrooming southeastern markets cause the diverse chemical industry to hold great promise for our state. Our raw materials, excellent water resources, and new technical developments are further factors in our favor. Amazing polyesters, epoxies, and resins have opened a treasure house of new product opportunities. Among the chemicals, plastics, for both industrial and consumer purpose, rank high among potential new industries.

**Food processing.** The state's great range of soils and climate can be induced to bring forth a wide variety of crops suited for food-processing industries. Additional frozen food and canning industries appear most likely for all parts of the state.

**Clay industries.** The famous clays of Georgia have thus far attracted little in the way of processing operations other than our brick plants. However, space-age ceramics and sanitary-ware and tile show increasing possibilities for raw material-oriented facilities.

**Synthetic fibers and electronic plants.** Although offering fully as much as her neighbor states as an advantageous location for synthetic fibers and electronics plants, Georgia has made virtually no progress in this respect. More determined effort and more resourceful salesmanship are certain to correct this condition in the near future.

### Implementing the Future

The progress of the Southeast, outstripping that of the nation as a whole, has been well documented. The bright destiny of this region is no longer doubted anywhere. As the heartland of the Southeast, Georgia is just as assured of fulfilling her promise. The only question is "when?"

The Governor's Conference on Trade and Commerce, launched this month, serves notice that state business leaders do not intend to wait for nature to take its course. Similar intentions are evident in new programs being formulated by the Georgia State Chamber of Commerce, the Georgia Department of Commerce, and other development groups.

It can be expected that Georgians will respond again with the spirit and determination that carried them to the top rung of the Southeast in the postwar decade!



## Water Problems in Georgia's Economic Advance

(Mr. Cameron is district engineer, U. S. Geological Survey, Atlanta. Publication authorized by the director, U. S. Geological Survey.)

Georgia's economic growth has been accompanied by development of its water resources. The economy of the Empire State of the South cannot continue to advance unless adequate provision is made to enable this valuable natural resource to carry its share of the load. The water is willing; but if it is to continue to serve the people, the people must be ready and willing to solve the many problems connected with its occurrence and use.

### Georgia's Bountiful Water Supply

Unlike many states in other parts of the country, Georgia is blessed with a plentiful supply of good-quality water. An amount of water equivalent to that which would cover the entire state to a depth of 17 inches runs off to the ocean in our streams and under ground every year. This is twice the average runoff for the 48 conterminous states.

When there is an abundant supply of good water, what are the problems? A friend whose crops were at the mercy of the elements summed his situation up in six words "too much or too little water." Those who saw the floods in northwestern Georgia in February 1961 can attest to the "too much." Those of us who experienced the 1954 drought can vouch for the "too little."

### Water Problems

Some of our water problems have been with us a long time. We are cognizant of new problems as the population increases and our demand for water becomes greater. However, recognition of the problems at hand is not enough; we must anticipate problems likely to be encountered in the future and be ready with the factual information properly interpreted, for their solution.

Water problems for the country as a whole have been categorized generally as problems of supply, distribution, quality, floods, pollution, and variability. Georgia has problems in all these categories. Some of them are of a minor nature now, but may become critical in some areas with industrial expansion, trends

toward urbanization, development of the land, and growth in population of the state. Identification of these specific water problems—both present and anticipated—in the state will assist in planning the attack to overcome them. A few of the major problems facing the citizens of Georgia are mentioned in this paper.

#### Distribution

The problem of supply is one of the most vexing water problems. The total water resources of the state at present far exceed the demand. The problem of getting the water to the right place at the right time in the amount required, however, is one that is evident today and one that is likely to become more acute if the use of water doubles during the next twenty years, as predicted. Of particular concern is the growth of cities on the ridges of the Piedmont. These cities are located in areas least likely to produce large supplies of ground water and are also a considerable distance from large streams.

#### Use

Use of water has an effect on the supply. Withdrawals in large amounts for one use may seriously deplete the flow of a stream tapped for another use. Heavy ground-water pumpage by one user may affect the amount of water available to another user as well as deplete the flow of small streams nearby. Large withdrawals along the coast may result in contamination of aquifers with salty water.

#### Drought

During periods of drought when the competition for water is keen, the problem of water supply becomes extremely critical. The lack of information on ground water supplies caused many citizens during the drought of 1954 to experience water shortages even though many were only a few hundred feet above a good supply of ground water. These same people saw many small streams go dry that had been flowing full a few weeks earlier. Development of storage facilities and the collection and dissemination of information on location of adequate supplies would help alleviate the effects of drought.

#### Quality

The problem of quality is closely related to the use of water. It is not enough to deliver the amount of

water needed at a given time and place; it must also be suitable for the purpose for which it is intended. The quality of water in Georgia's streams fluctuates during periods of varying flow, but in general the mineral content is comparatively low. In contrast to surface water, the mineral content of ground water is relatively constant but generally higher than most surface waters in the same area. It must be remembered that attempts to solve the supply problem may compound the quality problem.

The great quantity of saline water in tidal streams, which at present is relatively unused, may become a real asset to developers of the coastal region. If the saline water in the ground and in streams can be economically converted into water of good quality, it would then be a major source of supply. But, on the other hand, the conversion of saline water presents certain problems, one of which would be the disposal of wastes from its conversion.

### Floods

Floods are a normal part of a river's life; yet they create major water problems. To a home owner, flood waters several feet deep over his living room or kitchen floor are a water problem. To the bridge engineer, the loss of a bridge during a flood is a water problem. Storage of flood waters with its attendant problems, flood plain zoning, and the securing of information for intelligent design of hydraulic structures are some of the hurdles in the way of the planner as he lays the foundation for a greater Georgia.

### Pollution

Pollution of Georgia's waters has not increased to the extent found in many other states. However, it may pose a problem in the future, particularly with the trend toward urbanization and industrial expansion in the state. Water in the ground, as well as that in streams, could, without proper control, become polluted from such things as radioactive materials, detergents, brines, and many other industrial wastes. The increase in temperature of water in streams through its use for cooling purposes adds to the pollution problem.

### Planning for the Future

Although it may not be popular to spend now to collect facts that will be used in the distant future, inventories and technical knowledge of our water resources should keep pace with our expanding economy. Knowledge needed to solve most of these problems can be obtained from research, surveys, and data collection programs designed to provide information for sound development of our water resources. To be most useful, the results should be presented in such a manner that they can be more easily understood by the average user. Time is required for collection of water resources facts; therefore, programs to provide them should be planned

and implemented well in advance of the need for the information. We are already borrowing resources from future generations. It is incumbent upon us to use part of the fruits of these resources to provide a sound basis upon which Georgia's citizens of tomorrow may build.

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### Editorial Note

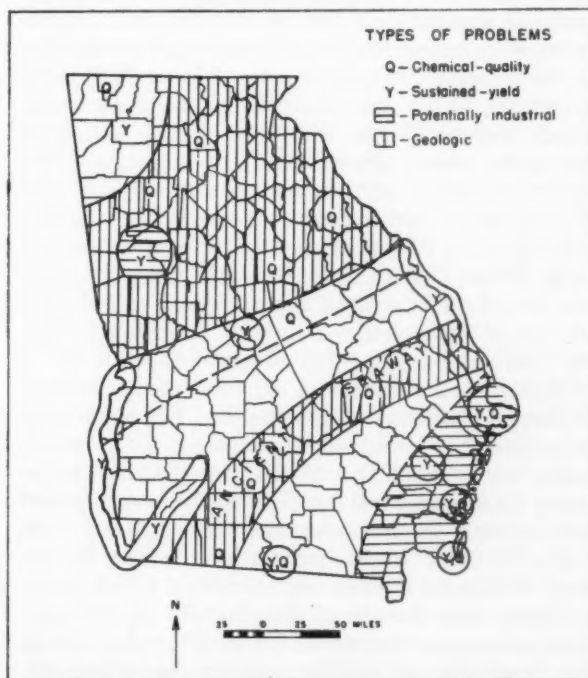
Georgia's plentiful supply of good-quality water becomes even more significant in the light of recent reports on the nation's potential water shortage. According to Dr. Arthur Miller, Director of the Federal Office of Saline Water, it will be necessary within the next ten years, because of the rising population, for more than 1,000 cities to convert salt water for drinking purposes.<sup>1</sup> The House Science and Astronautics Committee, also predicting a probable critical water shortage by 1970, has stated that the United States is likely to be the first of the world's largest industrial nations to be threatened by fresh-water shortages. The committee claimed that last year, as a nation, our rate of water use surpassed dependable supplies by eight billion gallons a day.<sup>2</sup>

As pointed out by Mr. Cameron in the above article, even with a generous supply of water in Georgia, problems do exist. The accompanying map demonstrates types of problems in connection with Georgia's ground water. Also pointed out by Mr. Cameron, surface-water problems—principally drought and flood—can be critical ones.

<sup>1</sup>New York Times, January 17, 1961.

<sup>2</sup>Ibid., January 29, 1961.

### Areas of Ground-Water Problems in Georgia



Source: Reproduction of map accompanying article by Joseph T. Callahan, "Ground Water for Georgia's Expanding Economy," *Georgia Mineral Newsletter*, Winter 1960.

# GEORGIA'S FORESTRY FUTURE

## Its Opportunities and Challenges

*(Mr. Renshaw is chief, General Forestry Assistance Branch, Division of State & Private Forestry, Forest Service, U. S. D. A., Atlanta.)*

### The Future of Forestry in Georgia is Bright

Someone has said: "There is nothing sure in this world but death and taxes." We can safely add to this "and a bright future for forestry in Georgia!" Fortune will be the farsighted timberland owner, the efficient timber operator, and the forward-thinking timber processor of the future. This is not to say that time alone will bring us Utopia; far from it. Only the considered, vigorous action of many individuals and agencies, both private and public, can attain the desired and necessary improvements vital to sustained, accelerated growth of Georgia's forest economy.

### The Future of Forestry Is in the South — and in Georgia

Recent studies indicate strongly that the future of American forestry is in the South. The eleven states constituting Region 8<sup>1</sup> of the United States Forest Service contain some 178 million acres of forest land, about 40 per cent of the national total. Of far greater consequence, however, is the wide and versatile variety of tree species with which the region is blessed, and the highly favorable combinations of soil, rainfall, and growing season which merge to produce the nation's most rapid rate of timber growth. Georgia has its full share of these benefits. In addition to being the largest state east of the Mississippi River, Georgia has over 64 per cent of its total area classed as commercial forest land,<sup>2</sup> the largest proportion of any southern state. In 1959 the combined value of pulp and paper products, lumber, and furniture manufactured in Georgia totaled more than \$930 million. This exceeds by a considerable margin the value of all farm products grown during the same period. Again in 1959 Georgia led all eastern states in the production of pulpwood with 4,735,100 cords. More southern pine lumber is produced in Georgia than in any other state in the South, and about three fourths of Georgia's 24 million acres of forest land are best suited for growing pine timber. The remaining six million acres of forest area are capable of growing good quality hardwood species, the raw material for a wide variety of specialty products. Georgia continues to lead all states in the production

of naval stores, and during the past few years has annually produced nearly three fourths of the nation's supply.<sup>3</sup> Is it not logical and correct to assume that an important share in the future of American forestry is inseparably linked with the future of forestry in Georgia?

### Diversified Markets Are a Real Need

Probably today's greatest single stumbling block to widespread forest development is the lack of adequate markets for the full range of species, size, and quality of timber which Georgia's woodlands are producing. This situation, of course, varies by locality, but areas where complete and unrestricted markets exist are rare. Not only does this condition preclude desirable competition, but it also frequently channels high-quality material into less valuable uses, at a loss to the seller or an inordinate cost to the buyer.

Strong sustained markets are a prime prerequisite to good forest management. Intensive management of pine stands was vastly stimulated with the coming of the pulp and paper industry to the South. With the steady increase in the use of hardwoods for pulp, we are re-entering this phase again with respect to the management of hardwoods. Complementary markets for poles, piling, veneer, sawtimber, pulpwood, and specialty products are needed to insure the best timber utilization.

Georgia needs and can support many new and diversified forest industries. The periodic survey of the state's timber resource now in progress<sup>4</sup> will provide a sound basis for planning this development. Concerted action by technically advised state, county, or community development groups, working with industry, offers a fine opportunity for real progress. It has been done in other fields; therefore, it can be done in forestry. One plan used very successfully involves the so-called industrial park. Here, on a well-selected site, with good transportation and all utilities available, a family of complementary processing plants can be assembled and developed to mutual advantage. In some areas where reasonably complete markets are already available, increased assistance from informed public or private foresters is needed to bring the proper buyer and seller, or group of sellers, together. Industry can help by providing readily understood product specifications, by working toward uniform terminology as applied to



timber quality, and by standardizing methods of measurement and payment.

### **More Efficient Logging and Manufacturing Are a Must**

Timber harvesting and utilization are other fields which require much improvement. During World War II the writer was a member of a timber survey party in Ecuador, seeking to discover new stands of balsa timber to increase war-time production. During the course of this survey, observation of local felling, bucking, skidding, transporting, milling, and seasoning methods showed that production could have been more than doubled, from the same trees, by adopting reasonably modern methods and equipment. We cannot hope for a result of this magnitude, but it is a fact that about one fourth of the timber now being cut is not used. Furthermore, an additional volume is not being channeled to its highest use, through either indifference or lack of knowledge and through the use of insufficiently skilled labor and/or outmoded methods or equipment.

Studies made at the Carbondale Research Center<sup>5</sup> showed that the value of the lumber produced from logs carefully bucked with respect to defects was about \$15 per thousand board feet more than from the same logs bucked "as usual." For another example nearer home, a cooperative study conducted by the Southeastern Forest Experiment Station and the Georgia Forestry Commission showed that Georgia sawmills are losing from \$5.21 to \$26.21 per thousand board feet of lumber produced largely due to preventable degrade during seasoning.<sup>6</sup>

Some progress has been made during the past 300 years with respect to harvesting methods and equipment, perhaps comparable to that from the horse and buggy to the model-T. We have not yet reached the airplane stage in development; and we are not yet thinking in terms of jets or missiles! To outstrip or even keep pace with competing products and to facilitate intensive forest management, we must develop methods and equipment which will permit cheaper and more efficient production of a more competitive, superior product.

We must also pioneer in the development of new ideas either for primary products or for by-products. The field of wood chemistry offers untold possibilities. The Forest Products Laboratory at Madison, Wisconsin, has done much excellent work in this field, and on plant methods and processes.<sup>7</sup> Its findings are available to all; however, these research results, as well as available similar information from state and from private sources, need more widespread acceptance and application. Alert, progressive companies already are taking the initiative to utilize new information and to obtain desired technical help. Much more could be accomplished if additional trained technicians were locally available to consult, advise, and provide assistance

upon request, or to conduct special clinics and training sessions as needed.

### **Forest Management Know-How is Available**

The development of American forest management has been rapid during the past 25 years. As has already been pointed out, expanding markets and increasing values have facilitated this development. Research, both public and private, and practical experience have provided many of the answers needed in management. Professional foresters practicing in Georgia, including public foresters, industrial foresters, and private consultants, now number more than 700. Management assistance from these professional men is readily available to all types of landowners, ranging from a complete management service for a fee from consultants to free advice including a few days service from the public or industrial foresters.

Many small landowners in Georgia have received this free assistance, largely under Congress' Cooperative Forest Management Act of 1950.<sup>8</sup> In some districts, because of the large number of requests received, service is sometimes delayed. Countless thousands of owners who need management advice and assistance have not yet requested it or do not know that it is available. Many of the small owners are slow to adopt new ideas, or must see a practice succeed on a respected neighbor's land before they are willing to accept it. Selling forestry to the small landowner and raising the productivity of his property is the major management problem in the nation, in the South, and in Georgia.

As of January 1, 1953, about 23 per cent of the total area of privately owned commercial forest land in Georgia, in tracts of 5,000 acres and up, was owned by 217 owners.<sup>9</sup> These large owners have been doing "good" to "excellent" management. Included in this category are lands belonging to the pulp and paper companies and other forest industry, State Forests, and the National Forests. Management objectives here are broad and usually include the consideration of values other than timber, such as watershed protection, wildlife, recreational use, etc., included in the Multiple Use concept.<sup>10</sup> The large acreage of privately owned timberland, in tracts of less than 5,000 acres in size, making up 77 per cent of the total, is controlled by more than 196,000 owners. These small owners, in proportion to size of ownership, were doing a progressively poorer job of management as rated by the existing productivity of their lands. Yet, we must look to this large group of small owners to grow an increased proportion of the timber which future industry and greatly expanding population will need. We must reach these people soon, effectively, and in far greater numbers. They must be awakened to the value to them and to the local and state economies of fully-stocked timber

stands growing to capacity and to the fact that a rapidly growing tree is a very profitable investment; that we are fast using up the large-sized timber; that quality can demand premium prices; that wildfire, uncontrolled grazing, and epidemics of disease and insects are continuing menaces against which we must constantly guard. Again, expanded, concerted efforts on the part of industry, private citizens, and state and federal agencies are needed to do the job.

Federally financed cost-sharing programs<sup>11</sup> have provided the stimulus for many owners to try new and recommended woodland practices. Although these programs provide major and direct benefits to landowners involved, they also, because of broad and long-range effect on the conservation of soil, water, timber and wildlife, provide indirect but important benefits to untold numbers of others.

### **Forest Taxation and Forest Credit Are Not Limiting**

Much space could be devoted to a discussion of the future of forestry as related to the twin subjects of forest taxation and forest credit. Neither is exerting an overbearing influence at present, nor seems destined to present limiting difficulties in the foreseeable future. Needless to say, taxes on forest properties must not influence silvicultural systems or sound management goals. Taxes should not be allowed to become a burden while future crops are being established and developed, but should properly be extracted from revenue at time of harvest. Forest industry, like all industry, should not be discouraged or stifled by an inordinate tax on profits. Much new industry has been attracted and assisted through the often difficult period of establishment and development by temporary tax concessions.

Financing for a sound industrial venture is not unusually difficult to obtain. Unfortunately, this same statement is not true with respect to investments in forest properties. Short-term credit is frequently available from local sources, but this is not the type of credit which the relatively long-time forestry operation needs. Intensive forest management, including planned protection of the investment, deserves and must have adequate financial support available.

### **More Effective Application of Research is Needed**

We have referred to the past and current contribution of research to general forestry know-how. Although we are lagging in application of already proven results, research needs to be stepped up in many fields. Pure and basic research must, of course, continue without interference. Applied research, however, can and should be more closely directed toward solving current problems such as discussed in the fields of marketing, utilization and management. We need closer ties and faster and clearer communication between research

foresters and practitioners. As an example, short, informal, but meaty research papers, such as are now being issued by the Georgia Forest Research Council,<sup>12</sup> are steps in this direction.

### **Concerted Action Will Do the Job**

Industry whose raw material is a natural resource which is bulky, heavy, or impractical to move has traditionally located near the source of supply. This is generally more economical even when it is necessary to import labor and ship the manufactured product to distant markets. Forest industry in Georgia, present or potential, is thrice favored. An increasing and assured supply of a renewable resource is available; an adequate source of labor is usually nearby; and good local markets with growing purchasing power, as well as national markets, are within easy reach. If we will but take an active part in programs to improve forest management, to get idle lands into forest production, and to assist in the establishment and development of a well-rounded forest industry, Nature will do the rest.

#### **FOOTNOTES**

1. Headquarters in Atlanta, Georgia; states included are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas.

2. Commercial forest land is defined as forest land which is producing, or capable of producing, usable crops of wood, now or prospectively.

3. With the exhaustion of stored rosin and the sharp increase in market prices it is expected that production in this, one of our oldest forest industries, will be stimulated considerably.

4. These surveys are conducted at approximately seven-year intervals by the Southeastern Forest Experiment Station, Asheville, North Carolina, in cooperation with the Georgia Forestry Commission and Georgia forest industry.

5. A Forest Research Center at Carbondale, Illinois, maintained by the Central States Forest Experiment Station of the U. S. Forest Service, Columbus, Ohio.

6. R. H. Page and R. M. Carter, "Heavy Losses in Air Seasoning Georgia Pine and How to Reduce Them." U. S. Forest Service Southeastern Forest Experiment Station Paper 85.

7. Maintained by the U. S. Forest Service, U.S.D.A., in cooperation with the University of Wisconsin.

Specific publications will be furnished upon request. Publication lists are published periodically covering releases in the following fields of study: boxing and crating; building construction; chemistry of wood; fire protection; fungus defects; furniture manufacturing; glue and plywood; growth and identification of wood; logging, milling and utilization; mechanical properties of timber; pulpwood paper; sandwich, laminate and aircraft components; seasoning of wood; wood finishing; wood preservation.

8. This Act provides federal financial aid to the states in carrying out the management assistance program. The Georgia Forestry Commission, under Director A. R. Shirley, is doing an excellent job co-operating in this program within the limits of available state funds.

9. United States Department of Agriculture, Forest Service, Forest Resource Report No. 14, 1958, "Timber Resources for America's Future." (A comprehensive appraisal of the timber situation in the U.S., made with the assistance of state and private forestry agencies, forest industries, conservation organizations and other federal agencies.)

10. Always a part of National Forest management, multiple or combination use is receiving increasing acceptance by the private owner, not only because of an enlightened attitude but also because of supplementary revenue or benefits which it may provide.

11. Agricultural Conservation Program, Soil Bank, Naval Stores Conservation Program, Cooperative Watershed Management, etc.

12. The Georgia Forest Research Council, with headquarters at Macon, collaborates with all forestry interests operating in the state to initiate and facilitate needed studies and projects.

## GEORGIA AGRICULTURE

*is dynamic; is changing; is scientific; produces new wealth; has problems; provides employment; is an important customer of business and industry—is important to the economy of the State; also, it feeds and clothes us.*

(Mr. Duggan is vice president, Trust Company of Georgia.)

Have you ever contemplated a situation where a whole nation is hungry? Where the people of a whole nation spend more than three fourths of all their labor for food? Where a large percentage of the population is engaged in wresting a meager livelihood from depleted land? Where agriculture supplies few, if any, raw materials for industry? Where agriculture does not provide a market for the goods and services of industry and business? There are nations in the world today that are experiencing all of these conditions.

Do you know that the majority of all people who have ever lived from the dawn of history have been bound to drudgery on the land? Only when agricultural technology and agricultural production advance faster than population can people be released to business and industry and the standard of living be raised. Only when food and fiber are plentiful can a people have the other conveniences and a high standard of living.

Has it occurred to you why we in the United States have the high standard of living we enjoy? One of the prime reasons is the fact that we spend, on the average, only one fifth of our annual income for food. The other four fifths is left for other uses. If we were eating the same food we ate twenty years ago, we would be spending only one sixth of our income for food. Most people of the world must spend one half of their income for food, and some nations spend over three fourths and more. In the United States we spend only one fifth of our income because technological and scientific developments in agriculture and agricultural production have advanced much more rapidly than has population. In fact, farmers have applied technologies so rapidly to agriculture that today we are faced with surpluses rather than scarcity. During this century, agriculture has increased efficiency of production more rapidly than have other industries in the country.

You may have thought that our enormous agricultural production is possible because of our fertile soils. This is only partially true. Much of our soil is of low

natural fertility. Other nations have fertile soils, some have had fertile soils which are now depleted and eroded and unproductive. These are the "have not" nations.

The United States acreage of harvested crops in 1960 was forty million less than in 1920, when our population was only 112 million; yet we have more and better food. Today, each of us gets all of our food and fiber, including the surpluses and that which is exported, from a little more than one and one-half acres of harvested cropland per capita. This does not include grassland pasture. An acre and a half is equal to about six city lots. In 1910 there were three and one-half acres of harvested crops per capita. The land area is not increasing, population is.

If great strides had not been made in soil technology, animal technology, power technology, and the applications of other findings of science, we would not be concerned over our agricultural surpluses but would rather be concerned over scarcities and the high cost of foods and fibers. We would be spending more for food and less for appliances, automobiles, and other things.

The results of technological advances in agriculture have been abundant supplies of food and fiber; large supplies of raw agricultural products for industry; and the release of manpower from agriculture to industries and services. Agriculture, over the years, has served as a reservoir of labor for industry and business.

In 1910 there were thirteen and one-half million persons employed full time on U. S. farms. Today, total farm employment is below eight million. In 1910 one farm worker produced enough food and fiber for himself and seven other persons. Today, he produces enough for twenty-six other persons. In Russia, one worker supplies food for only four to five other persons. Labor efficiency has increased much more rapidly in agriculture than in industry over the last 25 years.

Per acre yields of crops have increased greatly in the nation and in Georgia. In 1930 the average yield of corn in Georgia was 10.5 bushels per acre and in 1958 was 32 bushels; for cotton the yields were 222 lbs. and



443 lbs.; for tobacco 918 lbs. and 1,540 lbs.; for peanuts 665 lbs. and 1,190 lbs. Along with increased yields there has been an improvement in quality.

There has also been an increase in the output of livestock per unit and increased efficiency in the use of feed. We are getting more pounds of livestock per 100 pounds of feed than we used to. Only a few years ago, twelve weeks and twelve pounds of feed were required to produce a three-pound broiler chicken. Today a better quality bird of the same weight is produced in eight weeks with seven and one-half pounds of feed.

A recent issue of *Time Magazine* commented on Khrushchev's congratulating a chicken farm operator for having gotten an average of 176 eggs per hen per year. In 1959 the average production for all flocks in the U.S. was 206 eggs per hen. In 1940 the average was only 134 eggs per hen in the U.S. If production per hen were no higher now than in 1940, the price of eggs would exceed \$1.00 per dozen. With the present chicken numbers there would be a real scarcity of eggs.

### GEORGIA AGRICULTURE IS BIG BUSINESS

Of the thirty million acres of land area in Georgia, nineteen million acres are in farms. In 1959 almost five million acres were devoted to crops. This was three and one-half million fewer acres than were harvested in 1935. However, production per acre was much higher in 1959. There were one hundred and forty thousand fewer farms in 1959 than in 1935, but the average farm was eighty-three acres larger in 1959.

The one hundred thousand farms in Georgia market \$700 million in products each year. These raw products include broilers and eggs, cotton, tobacco, hogs, beef cattle, peanuts, dairy products, fruits, vegetables, nuts, and many other commodities. Many thousand people are engaged in assembling, processing, storing, and distributing these farm products. The creation of much wealth and employment begins on the farms of Georgia.

Farmers in the state are large buyers of goods and services. Their annual purchases amount to \$400 million. In 1958 Georgia farmers purchased \$145 million worth of feed and \$68 million worth of fertilizer. They purchased everything from airplanes to small electric motors. Purchases of gasoline and oil for power amounted to \$31 million. More than \$20 million was spent for building materials. Almost sixty-five per cent of all inputs used in farm production was purchased off the farm. Today, annual cash expenditures for current operating expenses, capital expenditures, repairs and operation, real estate taxes, and interest on farm debts use up seventy-five per cent of cash farm income. In 1946 cash expenditures were only 52 per cent of cash income. Farmers no longer produce horsepower on the farm, they buy tractors. They no longer produce

feed for work-stock, they buy petroleum products for fuel.

Consumers pay at retail over two and one-half billion dollars for the \$700 million worth of goods which farmers sell annually in Georgia. The farmer receives less than forty cents of each dollar spent for food by consumers. Each time you get a shirt laundered you pay as much for this service as the farmer got for the cotton in the shirt. On the average, there is only ten cents worth of cotton in each dollar's worth of cotton goods. There is only two or three dollars worth of raw wool in a \$65 suit of clothes. The farmer gets only two and eight-tenths cents for the wheat in a twenty-cent loaf of bread; only three cents for frozen peas that retail for 20 cents; and 48 cents for beef that retails at 80 cents. If farmers gave their cotton away, the cost of cotton goods would be reduced only ten per cent. The prices of farm commodities at the farm have been declining, while prices to consumers have tended to rise. Any increase in prices has come between the farmer and the consumers.

Georgia farmers are not only large buyers of goods and services, they have heavy capital investments. Georgia farmers have \$1.8 billion invested in land and buildings and \$360 million invested in machines and equipment. The investment per farm for land, buildings, machines, and equipment amounted to over \$20 thousand in 1959. Georgia farmers also had \$166 million invested in cattle, hogs, and sheep—or \$1,600 per farm.

For the United States, capital invested in agriculture equals three fourths of the value of all corporation stocks on the New York Stock Exchange. Sixty per cent more capital is required per worker in agriculture than in industry. In 1959 there were \$21 thousand of capital invested per farm worker in the U.S. compared with \$12 thousand per worker in all manufacturing industries.

In 1940 more than 35 per cent of the total persons employed in Georgia were employed in agriculture. In 1960 the figure was less than 10 per cent for agriculture. Those released from agricultural production have gone into manufacturing, processing, and to supplying services. Statistics are not available for Georgia; but for the U.S., since 1940, farm output has risen 50 per cent; man-labor used in farming has dropped 50 per cent; and output per unit of labor input has risen 100 per cent. Today one hour of farm labor produces four times as much as it did forty years ago.

### A LOOK AHEAD

Georgia agriculture is dynamic and changing. Technological developments are by no means complete. The lag between scientific discoveries and application is being shortened every year.



Scientific forestry is gaining rapidly in Georgia. Forestry is one of Georgia's most important replaceable resources that offer great opportunity for the future. Fifty per cent of the land in U.S. that will grow trees commercially is in the South. By the year 2000 much of the original growth of the West will be cut out and the South must grow more than half of the timber used in the U.S. Trees planted in the sixties will be the sawtimber inventory of the nineties.

Georgia agriculture has made great progress in this century. However, research in agriculture has hardly begun. If the demand were there, Georgia farmers and other farmers of the nation could expand production enormously with their present know-how. However, with present trends in population, by 1975 a volume of farm output more than 35 per cent larger than in 1956-58 will be needed, if we are to eat as well as we wish to. About 45 per cent more livestock production will be needed and an increase of 25 per cent in crop production. This is both an opportunity for, and a challenge to, Georgia farmers.

Georgia farmers should be able to expand materially livestock production during the next ten years. However, there will be some price problems at the bottom of the cattle cycle in the next few years. Broiler production will likely continue to expand but at a slower rate than in the past. There will be opportunities to expand production of fruits and vegetables—not as much opportunity for fruits and vegetables for use fresh, as for use in processing. This will call for more processing facilities, especially freezing facilities.

### **The Georgia Farm of Tomorrow**

The Georgia commercial farm of tomorrow will be larger. It must be, to use modern machines and equipment. It will not necessarily be a corporation farm. More capital will be required per worker and per farm and annual cash outlays for production will be higher. Even more off-farm inputs will be used in production than are used today.

The Georgia farmer of tomorrow will likely be producing crops and livestock to specifications. Livestock production will continue to grow in importance. In 1929 livestock accounted for 16 per cent of cash farm income in Georgia and now accounts for over 50 per cent. The growth of the broiler business in Georgia has been phenomenal. In 1935 Georgia produced one-half million broilers valued at \$230 thousand. In 1960 there were 320 million produced with a market value of \$171 million. Poultry brings in more cash income annually than any other farm enterprise in Georgia. In 1960 Georgia produced more than one tenth of all the commercial broilers produced in the U.S. The price to the farmer for broilers averaged around 30 cents a pound during the 1940's. Today the

price is around 16 cents a pound. The consumer is receiving the major benefits from scientific advances in poultry production.

More of the goods and services of nonfarm businesses will be used. Gross farm income will be up, but profit margins will be a problem. Production risks will be reduced, but price and market risks will increase. Superior managerial ability and technological knowledge will be necessary to operate a farm successfully. The small inefficient farmer with little training and few skills will wage a losing battle.

The Georgia farmer of tomorrow will produce to meet the needs of an expanding population. There will be fewer farmers and fewer farm workers, and less land will be needed. Yields will increase even more rapidly than they have in recent years.

Scientists at the University of Georgia are talking about *maximum* yields of 1,000 bushels of sweet potatoes to the acre and *average* yields of 200 and more bushels to the acre, which is double present average yields. Under irrigation, 800 bushels have been produced per acre. They are looking to 300 pounds of beef or more to the acre compared with 100 pounds today. They expect to see an average of 40 bushels of corn to the acre for the state. Numbers of 4-H members and Future Farmers over the state are averaging over 100 bushels of corn to the acre.

Cotton yields will continue to increase. An average yield for the state of 500 pounds or more per acre should be attained in a few years. At the South Georgia Branch Experiment Station at Midville an average yield of 684 pounds per acre over a three-year period has been realized without irrigation on 76 acres. At the same time, the cost of production of lint cotton per pound was reduced. More was spent for insecticides for the 76 acres each year than was spent for fertilizer. There are many cases in the state where 1,000 pounds or more of lint cotton to the acre have been produced.

### **THE PUBLIC AND AGRICULTURE**

#### **What Does the Public Expect from Agriculture?**

You and I expect agriculture to supply us with adequate, even abundant, supplies of food, fiber, and raw agricultural commodities for our consumption and for industrial use. We expect these supplies to be constant, not widely fluctuating. We expect high quality. We expect them at a time and place that is convenient to us, regardless of the seasons or the place in which they are produced. We expect them at reasonable prices according to our ideas of what is reasonable. All of this we have been getting with little thought or knowledge of how it came about.

## What Has Agriculture a Right to Expect?

The Georgia farmer has a right to expect an income that will enable him to acquire the capital required to operate an efficient business. He is entitled to compensation for his labor, his managerial ability, his skills, and his knowledge comparable with incomes of those in nonfarm business of equal size. His income must be high enough for him to assume the risks of farming. If we are to be a well-fed, prosperous nation in the future, we must have a sound prosperous agriculture.

The opportunities in Georgia agriculture outweigh the problems. Agriculture will continue to be an important contributor to the total economy and welfare of the state. It will continue to provide jobs on the farm and in the farm-related industries. It will use even more of the goods and services of industry than it has in the past. It will continue to supply abundant quanti-

ties of food and fiber of high quality, when and where they are needed. Prices will be reasonable at the farm.

As yet, we do not need to begin worrying about Malthus' theory that population, when unchecked, increases in a geometrical ratio, while food increases only in an arithmetical ratio. Malthus believed that population will always increase up to the limits of the means of subsistence and is prevented from increasing beyond these limits by wars, famine, and pestilence. Even without wars, we will continue to be concerned in the United States with agricultural surpluses for sometime to come. On the other hand, we must never forget that we are living in a world where bountiful supplies, even surpluses, of farm stocks could, overnight, become vital to our very existence.

*In a subsequent issue of the Atlanta Economic Review, Mr. Duggan will discuss some of the problems and scientific developments in agriculture.*

*Georgia forward*

*Willys R. Knight  
Roger L. Burford*

## A PROGRAM FOR GEORGIA

*(Dr. Knight is director and Professor Burford is research associate, Bureau of Business and Economic Research, Georgia State College.)*

### DON'T SELL GEORGIA SHORT!

Although at a later point in this article there will be some specific points of possible improvement mentioned in order that Georgia might make maximum economic progress in the years ahead, don't overlook the fact that the past twenty years have been years of remarkable advance for Georgia.

We rarely stop to think about it, but it is true that this impressive over-all progress has resulted despite body blows suffered by what were formerly the three basic pillars of the state's economy—agriculture, lumbering, and the textile industry. The continuing American revolution in agricultural practices was felt with its full impact in this state in the last decade and a half. Observe the *drastic* shrinkage in the number of farms in Georgia over the last years:

1945	225,897
1950	198,191
1954	165,523
1959	106,347

Bad as this precipitous decline was, think of how much worse it would have been had the big expansion of broiler production not occurred!

While agriculture was under pressure the textile industry—Georgia's leading employer—was plagued by an assortment of ills, both of foreign and domestic

TABLE 1  
Per Cent Increase in Manufacturing  
Selected Southern States and the United States  
1939-1959

	Manufacturing Employment	Manufacturing Income	Value Added by Manufacturing
Alabama	80.2	780.2	610.9
Florida	231.0	1524.5	1134.7
GEORGIA	102.4	828.7	650.2
N. Carolina	81.5	625.2	469.2
S. Carolina	81.2	719.0	693.5
Tennessee	116.7	801.5	586.3
All United States	66.0	628.5	472.5

Source: *The Statistical Abstract of the United States*, U. S. Department of Commerce; *Employment and Earnings*, U. S. Department of Labor; *Survey of Current Business*, U. S. Department of Commerce.

origin. As a result, employment in textile manufacturing in Georgia fell from 113,000 in 1951 to 98,000 in 1960.

Relatively, the decline has been more severe in lumbering, where work has declined sharply as the virgin pine forests have disappeared. The number of jobs in this activity (which was once second only to textiles in the manufacturing group) is now at a point only slightly above half that in 1947.

### Marked Industrial Growth

Yet despite these adverse developments affecting the three chief industries, Georgia's over-all economic record over the past twenty years has been good. It has maintained (or even slightly increased) its share of the personal income received in this nation, and in the key segment—manufacturing—it has made particularly noteworthy gains. In short, it has gained appreciably on the nation, and it has matched or bettered the pace of its neighbors—except for that stellar performer, Florida. (Florida's *per cent of growth* in manufacturing has been large partly because it started from such a low base.) (See Table 1.)

TABLE 2

Nonagricultural Employment in Georgia  
(in thousands)

	1947	1951	Oct. 1960
Mining	4.2	4.6	5.7
Contract Construction	36.0	46.4	57.1
Manufacturing	273.7	304.4	331.5
Durable Goods	79.1	93.8	98.4
Lumber and wood products	46.5	49.0	27.1
Furniture and fixtures	5.9	7.3	7.4
Stone, clay, and glass products	7.0	7.8	9.9
Primary metal products	3.9	3.7	4.0
Fabricated metal products	3.6	4.8	6.8
Machinery, except electrical	7.0	6.7	8.8
Transportation equipment	3.9	12.5	24.9
Other durable goods	1.2	2.0	9.5
Non-durable Goods	194.6	210.6	233.1
Food and kindred products	29.0	30.8	46.9
Textile mill products	108.2	112.7	98.1
Apparel and other finished products	26.5	30.8	46.0
Paper and allied products	7.6	11.8	18.1
Printing, publication, and other allied industries	6.5	7.5	10.1
Chemicals and allied products	9.9	10.0	7.7
Leather and leather products	2.4	2.3	3.7
Other non-durable goods	4.5	4.7	2.5
Transportation, Communication, Electric, Gas, and Sanitary Services	71.0	71.7	72.4
Trade	160.2	183.9	224.2
Finance, Insurance, and Real Estate	21.1	26.9	43.0
Services	72.4	79.3	96.6
Government	103.1	132.5	188.9
Federal	n.a.	n.a.	62.3
State and Local	n.a.	n.a.	126.6
TOTAL	741.6	849.7	1019.4

Source: Employment Security Agency, Georgia Department of Labor.

### Manufacturing Diversification

One of our most encouraging developments over the past dozen years has been a marked diversification in the variety of manufacturing in Georgia. Whereas textiles and lumber and wood products together accounted for 57 per cent of all manufacturing employment in 1947, today their combined share is but 38 per cent. Since 1947 the state has shown marked growth in fabricated metal products, transportation equipment, apparel, food products, paper and allied products, and printing. Moreover, chiefly by means of its leading metropolitan center, Atlanta, it has greatly expanded its historic functions as a great center for distribution (both wholesale and retail), transportation, finance, insurance, government, and miscellaneous services. (See the record in Table 2.)

### Summary

Since the end of World War II, mammoth changes have swept through the economy of Georgia. Despite severe blows to its basic industries the state emerged in much better condition than when the period began. The new industries, combined with an expansion of some which were previously well established, have placed the state in a position of large promise for the future.

### A POSITIVE PROGRAM

Georgia's economy has indeed made great strides in recent years. However, some things could be done to improve its growth potential in future years. Here are a few suggestions.

### Stress Education and Vocational Training

One of Georgia's greatest needs (a need which is not restricted to Georgia but which is rather general) is a continued upgrading and broadening of education at all levels—elementary, secondary, and collegiate. It is true that many industrial jobs do not require a base of formal school education; most of these jobs are now staffed by women workers. But more is generally expected of male workers in modern industry, and they are severely handicapped if they lack a good grasp of arithmetic and the communication skills—reading and writing. This is particularly important if the workers are to have a chance at promotions to positions of responsibility. The problem is acute today in many Georgia communities where the complaint is heard that "there are plenty of jobs for women but none for men." Actually the educational and skill level of the men needs a considerable build-up in order to attract the kinds of plants which are needed.

Moreover, greater attention must be given to the development of vocational schools to instill basic mechanical and industrial skills in the state's workers, and to retrain many who find their skills obsolete. This is



true of all areas of the state, urban and rural, but particularly in the small towns and rural areas. In this vein, it would perhaps be worthwhile to give greater consideration to some shifting in rural schools from agricultural education to industrial education. Agriculture in Georgia, as in all other states, is an industry of declining employment opportunities, and only a limited number of farm youths can look forward to being successful farmers at an adequate income level.

This suggestion is not new but it is important. The availability of trainable workers who already possess basic skills is an important factor in attracting the kinds of industry Georgia needs the most.

### **Accumulate a Larger Pool of Risk Capital**

Attention needs to be given to the encouragement of effective accumulation and use of local risk capital within the state for development of locally-owned industry. Apparently much privately-held risk capital within the state goes to firms located in other regions through stock-market investments. Also a large part of local capital flows into home building and other forms of real-estate development. At the same time, a large part of risk capital invested within the state has originated from the outside, as is indicated by a high proportion of new establishments in the state which are branches of out-of-state firms. (This problem—its description, analysis, etc.—is in no way peculiar to Georgia; it is found in an almost identical form in our sister states in the South, in the West, and in Canada.)

Precisely how local capital might be mobilized for use in developing local industry is a matter of question. Several southern states have taken steps to this end through varieties of state action. North Carolina, for example, acted several years ago to permit a private business development corporation to be chartered with authority to sell stock to and borrow money from businessmen, banks, insurance companies, and other organizations within the state for the purpose of making loans to small businesses throughout the state. Most of the loans made so far have been for the establishment of new or expansion of existing plants. In addition to channeling local funds into the risk-capital market, the corporation may borrow from the federal Small Business Administration. The corporation is a private venture and operates on a purely business basis.

Other states, Mississippi and Arkansas for example, permit local communities to form semiprivate development corporations which may raise funds by local stock sale, subscriptions, and loans from local banks, as well as loans from state development agencies and bond issues for broad sale. The funds raised by these agencies are usually used to acquire land and build plants and facilities to be sold or leased to new firms locating there.

In addition to publicly-sponsored types of programs, there are a few private development financing corporations (known as small business investment companies) formed by local bankers, businessmen, and others for the purpose of more effective accumulation and use of risk capital. They usually make medium- to long-term loans (often convertible debentures) to new or expanding firms. Through their activities they are providing a valuable service to the firms to which they lend and to their communities.

### **Accumulate Market Information**

Atlanta is the marketing and distribution center for a large part of the Southeast, and Georgia is in the approximate geographic center of the Southeast. Yet, here as elsewhere, there is an astonishing lack of information as to the markets and potential markets in the area. There is no precise knowledge as to what constitutes the market area or how the area varies between different types of products. Furthermore, there are presently no adequate measures of the state of the market in general or for any given class of products at any point of time. Much work needs to be done on the development of market indicators.

### **Emphasize Urban Planning**

With the rapid growth of the state's urban centers in recent years, much greater attention must be devoted to urban planning. The record is clear that new industry has developed in a large degree in already existing urban areas. The accumulating problems of metropolitan areas are certainly going to complicate and burden industrial operations within such regions. Anything done to avoid costly problems will, ipso facto, make a better climate for business.

Planning is necessary to assure orderly growth and prevent the chaotic growth of slums, traffic congestion, air pollution, and many other urban problems which normally lead to high costs and mounting taxes. The cost of adequate planning to prevent the occurrence of these conditions is far less than their costs, once they occur, in terms of tax burdens as well as social costs. Moreover, prevention of such conditions through adequate urban planning is far less expensive than their removal through urban renewal. Also, federal grants are available to assist in the cost of planning programs.

### **Business Development Corporations**

There is, and has been for a number of years, a high degree of competition between states to attract new industry from outside their borders. This competition has proceeded to the point that it is almost universal practice among state governments, usually working through local organizations, to provide some form of financial assistance to new firms as an inducement for



them to locate within their respective borders. Almost every state in the nation has some form of such programs. Georgia is one of the few exceptions. Mississippi was one of the first states to adopt a program of this type (its BAWI program) in the late 1930's. Others followed, slowly at first but rapidly in recent years. Most such programs involve a making of long-term loans at low interest rates to local development agencies which build plants for lease or sale at low cost to locating firms. Some of the programs, for example those of Mississippi and Alabama, provide, in addition, for a reduced tax bill or outright exemption from certain taxes for periods usually ranging up to ten years, and in some cases longer.

Georgia has no formal program of this nature at the state level, although her neighboring states do. This puts Georgia at a competitive disadvantage in many cases. (Though Georgia does not have a statewide program of this nature, some 25 counties are authorized to issue general purpose and revenue bonds which may be used to meet this need, giving these counties an advantage over the remaining 134.)

It has often been argued that sound firms are not attracted by such programs, and that states having

them are inviting trouble by inducing only marginal firms to locate within their boundaries. However, the experience of states having programs of this nature does not bear out this argument. In well-managed firms, location decisions, like all other operating decisions, are made on the basis of some kind of marginal calculations. For example, if a firm is considering locating in one of two towns, say one in Georgia and the other in Alabama, in which other factors (such as availability and cost of labor and other resources, and nearness to and cost of reaching markets) are about equal, a fairly small tax concession or a low-interest loan or low-rent plant may be sufficient to sway its decision.

Programs of this nature have become so nearly universal that it is almost imperative that states without them "join the fold" just to maintain their relative position among the states. A constitutional amendment which permits such a program in Georgia was passed by referendum in November. However, no funds have yet been appropriated with which to put the program into effect.

The suggestions made here are not intended to be all-inclusive but rather a few ways in which Georgia's future economic growth may be enhanced.

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Paul W. Miller

## CENTRAL CLEARINGHOUSE FOR SOUTHERN DEVELOPMENT

*(Mr. Miller is manager of the Industrial Bureau of the Atlanta Chamber of Commerce. He is president of the Southern Industrial Development Council and is also a director and the treasurer of the American Industrial Development Council.)*

### Recognition of a Growing Need

Development men in the South are agreed that the need is growing rapidly for an authoritative clearinghouse on all matters that might assist or affect the orderly economic development of the region. Heretofore it has not been possible to give any direction or coordination to the efforts of the many diverse agencies which individually have been trying to tell the South's story.<sup>1</sup>

What is envisioned is the future establishment by private enterprise of a full-time office through which could be channeled all inquiries pertaining to area development in the South—something akin, perhaps, to the long-established New England Council. It could be supported financially and in other ways by all the ex-

isting agencies—and become the information center or starting point for over-all southern development activities.

The New England Council has as its principal objectives the following: the achievement of desirable legislation at the national level; the promotion of consolidated services among the individual states in order to achieve greater efficiency and economy; the publicizing of the advantages for industrial development of the six states within the area; and informing everyone concerned of important developments through a *New England Magazine*. The activities of the New England Council are financed by membership fees of more than 3,000 participating firms and individuals.

### Some Specific Services for a Southern Economic Council

In addition to the general objectives such as those listed above for the New England Council, there are other specific things a regional organization in the

South might achieve. For example, it could provide quantity printings of well-prepared promotional literature on the South's progress which could be used to advantage by all of the region's development agencies. Also, it could stimulate the production of a professionally-made color motion picture to be financed by the utilities, transportation companies, and other leading industries, showing the resources of the South as well as the large progress in industrial development which has already been made. Such an educational tool would be useful in orienting both the local citizen and the far-distant industrial prospect.

Another worthy objective has to do with the increasing demands from American business for accurate market data on the South. In the years immediately after World War II, much industrial growth developed in consumers goods fields, and many manufacturers were attracted to this area as a result of the greatly increased per capita and family buying power. The rapid emergence of this new major market soon pointed up the need for supporting industries which in the past were feasible only in the East and Midwest. Container plants, parts manufacturers, and certain processors in electronics, metal working and/or treating and plastics producers are typical examples of a second stage in the South's industrialization in more recent years. The third stage is imminent and relates to a great degree to products and processes of a technological or scientific nature. For example, components now manufactured in the East or Midwest and shipped to southern plants for final product assembly will be produced here as soon as conditions warrant it.

To prepare for and expedite this important third stage in the maturing of the South's industrial complex, the southern states could do well to work toward a rigid standardization of industrial and commercial record keeping for each of the states' development agencies. Ideally, through the use of accurate and complete card files, computers, and allied equipment, valuable market data in industry and distribution could be channeled to American industry to our mutual advantage. A beginning on this would be to convert to Standard Industrial Classifications all of our statewide industrial directories.

Another thing which a regional council could promote would be the further development of educational and training programs—including engineering schools, technical institutes, centers for the skilled trades, business administration programs, and many more. Also worthy of consideration would be the development of training centers offering college level courses in area development training.

Other services of value which could be rendered by a southern regional council would be the promotion of tourism throughout the South, and also the provision of a central clearinghouse for information concerning

personnel interested and qualified to work in industrial development activities.

There is a need at the local level for leadership with better training in the techniques of dealing with representatives of potential or expanding industries which are interested in their areas. Many eastern and midwestern industrialists, when seeking a southern plant site, prefer a location in a rural town or county within the economic influence of one of the major metropolitan areas—yet many miles distant from the central city. Thus people in smaller communities need to know how to negotiate with representatives of these firms efficiently and effectively. Likewise, the larger southern cities and trade centers should further the trend of coordinating their development efforts with all the smaller communities within their immediate trade territories and help them to determine the particular types of commerce they might hope to develop or attract.

A word of caution is probably in order for those enthusiastic developers who attempt, at all costs, to entice a desirable industry to their respective states or communities. Recognizing the keenly competitive quality of the race that develops when a "blue chip" firm surveys a variety of locations in several states, there is sometimes one tactic used that serves no useful purpose—and quite often is detrimental to those few southern developers who employ it. That is the matter of disparaging the qualities or offerings of competing cities or states. Unfounded statements about tax structure, labor climates, local or state governments, or other factors quickly create doubts in the mind of the inquiring representatives about the desirability of the entire region. According to frank statements from these representatives, several adverse reports along these lines have resulted in their plans to move South being delayed or completely abandoned.

One of the most important services a southern development agency could render, to both established and migrating industry, would be assistance wherever desired in the fields of labor relations and industrial relations. Through the wise handling by management of its relations with working people, the South could profit from the unfortunate experiences of the industrialized East and Midwest.

Many fine examples of both union and nonunion plants exist in the South today. Soon after World War II a number of firms seeking southern locations voiced a desire to "run away from the unions." Quite often these industries sought cheap labor areas and disregarded a lot of other important factors in choosing a location. On the other hand, a comparable number of companies from all over the nation created southern outlets and by preference effected union contracts along the general lines of those in their older plants. A larger middle group of southern industries provides many

examples of organized and unorganized work forces in the South's maturing industrial economy.

Today development men discover among their prospects increasing concern for the matter of future labor relations; it is a subject of such complexity and significance that the developer normally calls on a specialist for guidance. If we are to retain in future decades the desirable labor climate the South now claims, it is essential that our responsible development agencies have something tangible and timely to offer on management-worker matters wherever needed.

The wage differentials from region to region are disappearing, but the distinct characteristics that are inherent in the southern work force still remain. A complete understanding regarding the local labor climate

is invaluable to a new employer coming into the region. In many cases it is mutually advantageous for him to seek the counsel and advice of established employers already here. Many of the mistakes that have plagued American industry in its dealings with personnel at all levels can still be avoided in the South if real effort is devoted to it.

#### FOOTNOTES

<sup>1</sup>Among the items discussed during the 1959 Southern Governors' Conference was a recommendation offered by that group's Committee on Industrial Development to approve a permanent staff arrangement that could handle southwide area development inquiries. (This same idea was brought up at the previous year's conference and was favorably received.) The discussion covered the pros and cons of setting up the office in a location such as New York or Chicago, or in a conveniently located southern city. However, no formal action was taken on the matter during the 1959 meeting.

*research*

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## New Industrial Possibilities for Southern Agricultural Products

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New opportunities for industrial development in the South have never been greater than today, and no other section illustrates so well the value of research in improving the economic well-being of a region. The South provides 35 per cent of the agricultural products of the nation, and it is significant that over one half of all new plants located in the South are related in some way to agricultural activities.

The majority of southern industry is relatively new, and it is based upon recent technological advances. At least half, and possibly as much as three fourths, of the 250 per cent increase in its per capita income since 1939 may be directly attributed to opportunities inherent in the results of research to convert southern resources into products required by our expanding economy.

The research conducted by the Southern Utilization Research and Development Division of the U.S. Department of Agriculture has contributed much to the development of opportunities for southern industry. To illustrate the extent of the opportunities awaiting the development of southern industries, some of the recent research accomplishments of the Southern Regional Research Laboratory are discussed in this paper.

In addition to the number of improvements in cotton for use in apparel, rot-resistant cotton and a durable flame retardant finish for cotton are among the more recent research advances.

### Rot-Resistant Cotton for Outdoor Use

Considerable interest has been expressed in the Southern Division's treatment for making cotton fabrics last longer than untreated cotton when exposed to mildew, rot, and weathering. This promising development opens up a potential annual market of approximately 230,000 bales of cotton in end-uses such as awnings, tarpaulins, tentage, field coverings, beach umbrellas, ditch liners, and irrigation pipes. The treatment is low in cost and involves the use of the formic acid colloid of methylolmelamine, a chemical that can be applied with standard textile finishing equipment.

Cotton fabric treated with the new finish is excellent for seedbed covers. Moreover, entomologists, horticulturists, agronomists, and others have expressed a desire to cooperate with the Southern Division to evaluate these fibers further.

### Durable Flame Retardant Finish for Cotton

Another chemical modification of cotton offers additional opportunity to the cotton industry. One treatment involves application of a compound known as THPC—tetrakis (hydroxymethyl) phosphonium chlo-



ride—used in combination with the phosphorus compound APO. It makes cotton not only flame- and glow-proof through many launderings, but also imparts wrinkle resistance, rot and mildew resistance, and water-vapor permeability. Cotton fibers treated with the retardant can be processed into yarns and fabrics.

Research has shown that the APO-THPC treated fabrics continue to offer protection even after exposure to fires and high temperatures. On carbonizing or charring, the fabric form—relatively tough and pliable—is retained. Products of this kind are now being produced commercially on a limited scale. Resistance to fire is important in consumer products using almost two billion pounds of cotton and other fibers annually. A preliminary cost study on the continuous processing of APO-THPC resin treatment of cotton fabric indicates that processing costs would be about 15 cents per square yard over a wide range of productions.

### **Superior Elastic Conforming Cotton Bandage**

This new product is made by a special method for shrinking ordinary cotton gauze in strong caustic soda solution. The treatment, mercerizing without tension, causes the fibers to swell and the yarns to crimp and kink. The resulting surface texture and elasticity of the gauze makes successive layers of the bandage cling together without slipping. It fits joints snugly, allowing elbow, knee, wrist, or ankle more freedom to move than ordinary bandages. This true elasticity, too, allows not only movement in a bandaged joint but flexing through a wide angle without loosening the bandage. This pronounced elasticity of the bandage in both directions also gives it a self-tightening quality especially suitable for mild pressure dressings for burns and skin grafts.

The new bandage can be furnished at a cost less than half the cost of the conventional elastic bandage. At least two leading manufacturers of surgical gauze are producing this bandage, which amounts to approximately six per cent of the total elastic surgical bandages produced in this country. Annual usage of approximately 4,000 bales of cotton with a product value of \$5 million and cumulative value of \$35.5 million has resulted from commercialization of this bandage.

It is possible that even other applications may be developed for an elastic material of this nature.

### **Acetoglycerides Go Commercial**

The development of edible fats from cottonseed oil changed the status of cottonseed from an unwanted by-product to that of an important agricultural commodity. New vegetable fat and oil products with unique and potentially valuable properties can be produced by substituting acetic acid for a portion of the fatty acids occurring in ordinary fats and oils. These unusual

modified fats and oils are known as acetoglycerides. Chief among their unique properties is an exceptionally wide range of plasticity and the ability to exist as non-greasy, plastic solids. These products may be used to keep foods fresh longer, make food spreads spreadable over a wide range of temperatures, and produce top-quality plastics. Acetoglycerides should open many new markets for our increasing supplies of edible fats and oils, estimated to be up to 100 million pounds annually. The value of such products could be as much as \$50 million yearly.

### **Improved Cottonseed Meal Feed**

Prior to 1947, use of cottonseed meal for livestock rations was limited largely to cattle because it contained gossypol, a pigment that is toxic to poultry and swine. As a result of research to improve its nutritive value, cottonseed meal has gained a new status as a feed, particularly for nonruminant animals. Some cottonseed oil mills are now producing the improved meals for use in mixed feeds. These advances were achieved by cooperative research between the Southern Division and the National Cottonseed Products Association, state agricultural experiment stations, nutritionists, other agencies of the Department of Agriculture, university laboratories, and numerous oil mill operators. Annual gains to the industry through the availability of cottonseed meal of improved nutritional value could amount to about \$50 million.

Although variable from year to year, the new market for cottonseed meal has been estimated to have reached 300,000 tons annually in recent years. Largest market for the improved cottonseed meal at the present time is in California where, in 1958, an estimated 200,000 tons went into poultry rations. Even when fed to laying hens at low, nontoxic levels, gossypol in unimproved cottonseed meal caused egg yolk discoloration on long storage. The improved cottonseed meals, however, can be fed at levels up to 10 per cent of the total diet of hens with no adverse effect on the yolks of eggs produced for the fresh egg market.

The use of improved cottonseed meal as poultry food will be of considerable interest to poultry growers.

### **Methyl Esters Produced from Cottonseed Oil Soapstock**

By means of a process developed at the Southern Division, methyl esters of cottonseed oil fatty acids can be made directly from soapstock or "foots" as it is commonly called. This represents another example of a surplus, low-cost agricultural by-product being used as a starting material for the production of a commercial product. Methyl esters offer industry an opportunity to market as a high-energy additive for poultry and livestock feed. This is a large and expand-



ing market, and approximately 600 million pounds of animal and vegetable fats went into feed last year. The basic raw material for this process, cottonseed and other vegetable oil foots, is in plentiful supply—approximately 300 million pounds are being produced annually in the United States as a by-product of cottonseed and other oil refining.

### **New Tung Oil Resin Varnish Vehicle**

The secret ingredient, tung oil, which made famous the lacquers of ancient China, now can be used successfully in the commercial production of varnishes, floor sealers, and paint vehicles for modern-day use.

The Southern Division, in cooperation with the Tung Research and Development League, has developed a new method for processing the tung oil vehicle that removes the danger of its gelling during cooking—the major drawback to a more widespread commercial use. The process involves the addition of relatively small amounts of zinc resinate and refluxing the volatiles given off during cooking to control gelling or polymerization. Tung oil has been recognized and used for centuries as a "super" drying oil. It dries rapidly and gives extreme toughness, water resistance, and high gloss to coatings in which it is used. But the tendency of tung oil to gel and form an insoluble, rubber-like mass when processed for the necessary time at the high temperatures required to insure smooth, wrinkle-free finishes has plagued the paint and varnish industry, despite its almost ready-made market for extremely tough and water resistant coatings.

The new process has led to keen interest among such large users of industrial varnish-type paint as state highway departments. The highway departments of a number of southern states, as well as more than a dozen manufacturers, have received samples of the tung oil-containing paint vehicle for testing. The paints and varnishes made with tung oil by the new process are easy to use and apply and should be competitive costwise with those using other drying oils. They are excellent for interior as well as exterior use, and produce finishes that are characteristically smooth, tough, flexible, waterproof, and glossy.

### **Paper Size Directly from Pine Gum**

Chemicals are basic to the pulp and paper industry, one of the nation's top industries and of particular importance in the South. One application for chemicals is in paper sizing. A procedure for the production of rosin paper size directly from partially neutralized pine gum has been developed. Since this procedure obviates the handling of rosin as such, a cheaper process for making size should result. The development is a result of fundamental research which showed that the

neutralization of pine gum with sodium hydroxide inhibits the change or isomerization of some of the resin acids present, and that major changes which normally occur in the composition of rosin when it is heated during processing can be avoided by controlling the acidity of the pine gum. In the conventional process, paper size is prepared by reacting rosin with sodium hydroxide after most of these changes have already taken place.

### **Dehydrated Sweetpotato Flakes**

One of the major problems of sweetpotato growers is finding profitable uses for surpluses and the large proportion of the crop unsuitable for the fresh market, amounting to six to eight million bushels annually. An attractive precooked dehydrated flake product has been developed to provide the outlet needed for these substandard or off-size and surplus sweetpotatoes. This product, prepared by a process similar to that used in manufacturing white potato flakes, has the characteristic bright color as well as the flavor of fresh pureed sweetpotatoes. When added to hot water or milk, the flakes are ready to eat in about 60 seconds as mashed sweetpotatoes, or for use in a pie or casserole.

The Southern Division in cooperation with other agencies is now ready to begin pilot-plant production of precooked dehydrated sweetpotato flakes. The pilot plant will be operated to obtain engineering data for commercial scale processing and to produce sufficient dehydrated flakes for consumer testing.

### **A New Versatile Starch**

A major breakthrough in starch chemistry by scientists at the Northern Division has brought a versatile material known as dialdehyde starch out of the laboratory and is putting it into commercial production. This chemically modified starch opens up promising new opportunities for wider industrial use of surplus grain. Some of the partially oxidized starches are superior to ordinary starch for use in many types of coatings, sizings, and adhesives. They provide a large number of entirely new chemical raw materials for the plastics industry and many other users. The dialdehyde starch has been found to have tanning properties, useful in obtaining superior leathers.

### **Animal Fats in Plastics**

The Eastern Division has also shown industry how to use excess animal fats to advantage in plastics. Scientists there have developed superior plasticizers—stabilizers and softeners for plastics—by a chemical process that yields epoxidized fats and oils. They are used to give vinyl plastic products such as raincoats, umbrellas, and clear garden hose longer lasting pliability, and resistance to deterioration by heat and light.

### Other Potentials

Additional opportunities for southern industry may soon come from other research efforts: plasticizers from cottonseed oil, peanut oil, rice oil, or tung oil; de-oiled peanuts, ammoniated tung meal; cocoa butter-like fat; slab oils; pinonic and pinic acids; hydronopyl acrylate; oxidized rosin acids; methylolated rosin acids; powdered fruit and vegetable juices; and pulp-fortified citrus juices.

These selected examples of research and development activities emphasize that there are opportunities in

the South for new industries based on southern-grown agricultural commodities. They emphasize, too, the growing role that can be and is being played by industry in establishing industrial plants to utilize surplus agricultural raw materials as efficiently and with the same quality and profit levels as comparable installations elsewhere in the United States.

*Note: The accomplishments of research in utilization of agricultural products and the resulting significance in industrial growth in the South are covered more fully in the complete bulletin by Mr. Patton and Mr. Koltun, New Opportunities for Southern Industries, published by the Southern Association of Science and Industry.*

## SOUTHEASTERN CORNER

### The Southeast Grows Up

**Winfield Hutton**

*(Dr. Hutton is assistant professor of economics in the School of Industrial Management, Georgia Institute of Technology.)*



As a region grows up economically, it shows certain changes. Its people can buy more goods and services with their larger pay checks. An increasing proportion of these pay checks will come from manufacturing, trade, and services relative to agriculture. And the pay checks coming from manufacturing will reflect increases in value added by manufacturing in the region.

If the title of this paper may be treated as a hypothesis, the following growth criteria may be applied as tests: To what extent has the Southeast<sup>1</sup> grown? Is this more or less than the rest of the nation? What can the Southeast do to keep growing?

Manufacturing creates income. People spend this income on goods and services, generating income for people who work in stores and office buildings, as well. Thus, we shall first analyze southeastern growth from the standpoint of manufacturing gains; next, show how these gains have produced shifts in the relative importance of nonmanufacturing jobs as sources of income; then add up these gains to see how they have benefited southeastern residents as a whole; finally, the crucial question: What must the Southeast do to keep these gains coming?

### MANUFACTURING MOUNTS

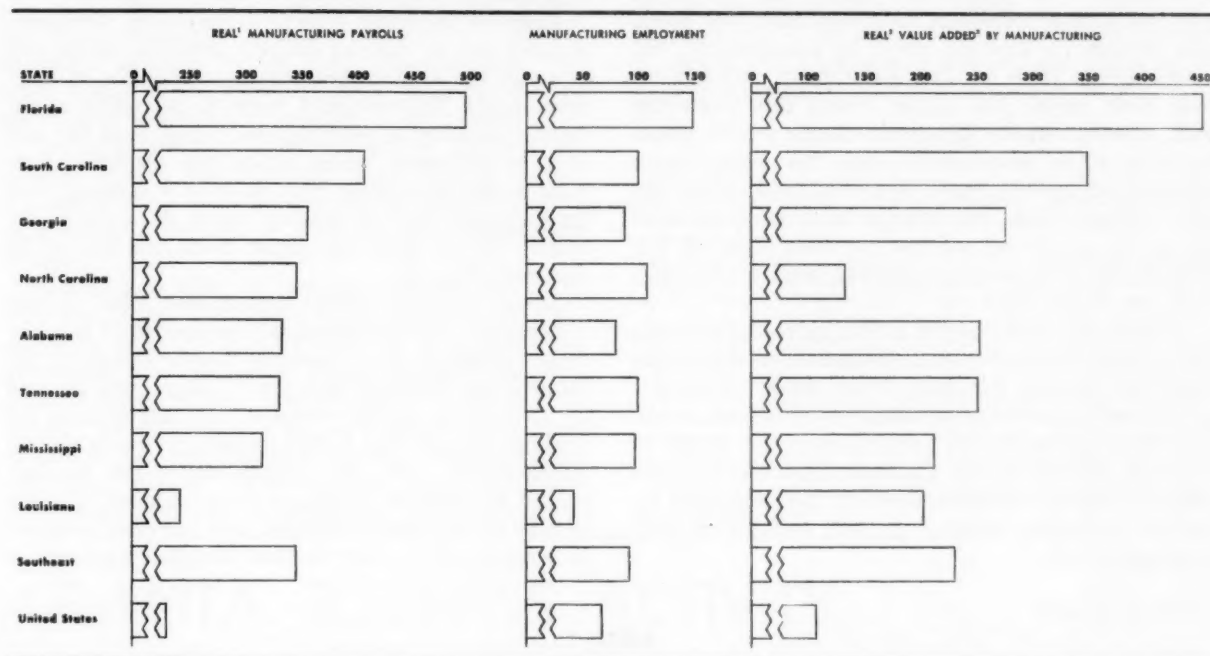
Many people think of economic growth primarily in terms of "industrial development" (or increases in manufacturing activity). Using this as a criterion, the Southeast has definitely grown in the last thirty years, and at a faster rate than has the nation. (See Figure 1). Manufacturing payrolls have increased most in those states where production (but not necessarily employment) has increased most. The relationship between payroll increases and production (value added) increases is much closer than the relationship between payrolls and employment. This seeming paradox leads to the question, "Why?" Don't more jobs mean larger payrolls? The answer to this is "yes," but only to the extent that these additional workers add more value to output. Without increased value added, firms would find it difficult to pay more workers more money.

Value added is the key to increased income from industrial development, as is shown in Figure 1. To increase its income by industrial development, then, the Southeast must, if possible, lure high value added

Figure 1

# SOUTHEASTERN INDUSTRIAL DEVELOPMENT

Per Cent Increase from 1929 to 1958



1. In 1958 dollars, using the All-Item Consumer Price Index as a deflator.
  2. In 1958 dollars, using the nonfarm and nonfood Wholesale Price Index as a deflator.
  3. Unadjusted value added (to ensure comparability between 1929 and 1958 data). The year 1958 is used as the terminal year because it is the most recent year for which these data are available.
- Source: U. S. Bureau of the Census, *Census of Manufactures*.

industries—industries such as chemicals, fabricated metals, instruments, machinery, paper, petroleum, primary metals, and transportation equipment. Luring these industries requires more than a good selling job by industrial development commissions; it requires that these commissions have something to sell: resources, research, a competent labor supply, and markets—one or more of these. How to obtain them is the crux of the last section of this article.

## THE HORIZON CHANGES

As an area grows, the cornstalks, silos, and barns on its horizon give way to factories, warehouses, and office buildings. Its economic role changes from that of principally a supplier of raw materials for processing elsewhere to a manufacturer and distributor of its own needs and the needs of other regions. Thus, it begins to derive an increasingly greater proportion of its income from manufacturing, trade, and service activities relative to extractive operations, such as agriculture and mining.

If economic growth is measured in terms of an increasing reliance on manufacturing, trade, and service activities relative to extractive industries, we discover that every southeastern state has grown in this way, too; and, again, at a faster pace than the nation during the past three decades. (See Table I.)

As a region industrializes, manufacturing contributes to income, as described in the preceding section. When people earn more money, they usually spend a larger proportion of their increased earnings on goods and services. Money so spent contributes to increased income in trade and services. This does not mean that income from agriculture *must* decline absolutely as a region grows; it means that by broadening its economic base the region becomes more dependent on other sources of income. This helps the farmer, too. As a region's economic base is broadened, more people move in to fill the jobs created, and more people mean more mouths to feed and bodies to clothe. More jobs also provide employment for those farmers who wish to supplement their farm income with city work or leave the farm altogether.



## LIVING STANDARDS RISE

Economists usually reckon economic growth in terms of increases in per capita real personal income.<sup>2</sup> This is because economic growth is concerned with the betterment of the people in a region, and per capita personal income represents their command over goods and services. As a region grows up economically, the people living there can buy more goods and services with their larger pay checks. Using this measuring stick, a recent *Atlanta Economic Review* article<sup>3</sup> points out that every southeastern state has grown more rapidly than has the nation as a whole during the last three decades. Thus, the average southeasterner's ability to buy goods and services has risen from 48 per cent of that of the average national consumer in 1930 to 71 per cent in 1959.

Clearly, the Southeast has grown up both absolutely and relative to the rest of the United States during the past three decades. But what of the future? Economic growth will not come to the South as effortlessly as the Mississippi comes to the Gulf. Rather, the future of economic growth in the Southeast depends upon the extent to which it exploits, develops, and adapts its resources (including human) to meet national, as well as its own, needs.

## RESEARCH AND EDUCATION: KEYS TO GROWTH

Exploiting, developing, and adapting resources require research and education. Research and education, then, are important keys to economic growth.

Research facilitates growth in two ways. Economic research can be used to discover economic needs and ascertain the southeastern resources available to meet these needs. Technological research can adapt southeastern resources to meet national needs, as in the case of pulp and paper, where technology adapted a marginal southern resource, pine, to meet a national need for pulpwood used in making paper. As a result, the world's largest pulp and paper plant was located in Savannah, Georgia.

Other examples further demonstrate what technological research may accomplish for industrial development. Research by a Georgia marble company discovered that limestone and marble chips could be used by a chemical powder company, and this induced the leading national firm in this industry to locate a plant in Savannah. Also, the Hixson-Miller (or similar) process for making aluminum from marginal clay and bauxite in the Macon, Georgia, area has been proposed as a means of adapting another marginal southern re-

**Table 1**  
**SHIFTS IN SOURCES OF PERSONAL INCOME, SOUTHEASTERN STATES, 1930 AND 1959**  
(per cent)

Source of Income	ALABAMA		FLORIDA		GEORGIA		LOUISIANA	
	1930	1959	1930	1959	1930	1959	1930	1959
Extractive industries <sup>1</sup>	21.1	7.2	10.7	6.0	16.7	5.6	11.3	9.7
Fabricating industries <sup>2</sup>	16.7	24.6	10.8	14.8	16.6	23.6	15.3	17.6
Trade and service industries <sup>3</sup>	35.6	40.9	41.7	43.9	39.0	43.7	41.4	41.5
Other sources <sup>4</sup>	26.4	27.3	36.7	35.2	27.6	27.1	31.9	31.2
Total <sup>5</sup>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source of Income	MISSISSIPPI		N. CAROLINA		S. CAROLINA		TENNESSEE	
	1930	1959	1930	1959	1930	1959	1930	1959
Extractive industries <sup>1</sup>	24.3	15.5	18.3	9.1	21.1	6.6	14.1	6.7
Fabricating industries <sup>2</sup>	12.6	18.8	24.1	28.3	21.4	29.5	18.4	26.4
Trade and service industries <sup>3</sup>	34.9	35.9	30.7	36.1	33.3	38.2	37.4	38.7
Other sources <sup>4</sup>	28.0	29.9	26.8	26.5	24.2	25.7	30.2	28.2
Total <sup>5</sup>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1. Includes agriculture, mining, and crude petroleum severance.

2. Includes manufacturing and contract construction.

3. Includes wholesale and retail trade, public utilities, financial industries, federal, state, and local governments, and other services.

4. Includes nonfarm proprietors' income, property income, transfer payments, and all other sources of income.

5. Components may not add to 100.00 per cent due to rounding.

Source: Adapted from data presented in U. S. Department of Commerce, *Personal Income by States* (1956) and *Survey of Current Business* (August 1960).



source to meet national needs for a product in growing demand. Other southeastern natural resources capable of further adaptation to national needs include chemical deposits in Louisiana, Tennessee, and Alabama and petroleum on the Gulf coast, both raw materials for the high value added industries mentioned above, which are considered especially desirable in obtaining increased personal income from manufacturing. Another article in this month's *Review* describes the application of technological research in agriculture.<sup>4</sup>

Research, however, does not always produce immediate results. The Southeast must allocate human and financial resources to perform the research role in southeastern growth even before tangible results seem in sight.

Education is basic to research. Education is also necessary to train the South's labor supply so it can fill the rising level of job skills required in economic development. The high value added industries, so beneficial to income growth, usually require a high level of job skill and education. Thus, the Southeast must bring its educational program up to a level at least on a par with other regions. Otherwise, the cream of Dixie's high school crop will probably continue to go outside

the Southeast for higher education—and be lured into jobs near college rather than back home in Dixie. Education is capital; it goes where it is needed and bought.

A tourist will never reach the Sunny Southeast unless he learns the way and adapts his course to it. Similarly, the Southeast will continue to grow only to the extent that it engages in research and education to meet the demanding needs of economic growth.

#### FOOTNOTES

Note: The author acknowledges the advice and assistance of Dr. Harrison W. Straley, III, professor of geology, Georgia Institute of Technology, in the section of this article treating technological adaptation of southern resources.

1. Data for the Southeast in this article are for the states of Alabama, Florida, Georgia, Louisiana, Mississippi, the two Carolinas, and Tennessee (as indicated in the accompanying map).

2. Per capita real personal income is total personal income of a region divided by the number of residents in the region (to get per capita personal income) and then divided by a price index (to put it on a constant dollar or "real" basis). Per capita real personal income measures the amount of goods and services a given money personal income can buy per person. Personal income measures a person's income after social security taxes but before all other taxes.

3. Roger L. Burford, "Trends in Regional and State Income Differentials," *Atlanta Economic Review*, November 1960, pp. 20-21.

4. Patton and Koltun, "New Industrial Possibilities for Southern Agricultural Products," p. 17.

## ATLANTA BUSINESS ACTIVITY

John R. O'Toole

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Although the tempo of economic activity has probably quickened recently, comprehensive data is not available to verify current trends. The data at hand, usually a month or more behind the events, shows that the Atlanta Metropolitan Area's economy registered additional setbacks in employment in February, continuing the downward drift begun the last quarter of 1960.

Total *nonagricultural employment* was off 2,550 workers from January, and 4,300 from February of 1960. The bulk of this loss was in durable manufacturing—specifically, transportation equipment, which declined 1,300 from January and 4,750 from February a year ago. This decline resulted for the most part from partial shutdowns in auto assembly plants during inventory adjustments.

*Retail trade* lost 2,400 from January to February, largely as a result of reductions of temporary Christmas help retained for inventory and January clearance sales.

Although the number and value of *building permits* issued by the City of Atlanta Inspector of Buildings and the *number of employees in contract construction* were somewhat under January totals, they were, nevertheless, seasonally good, registering gains over February 1960 in all three indicators.

Actually, during the recession months of 1960 the Atlanta Area fared relatively well compared to the nation as a whole (see accompanying table). *Unemployment* averaged about 4 per cent for Atlanta, whereas the nation as a whole was closer to 6 per cent.

#### UNEMPLOYMENT AS PER CENT OF TOTAL LABOR FORCE — ATLANTA COMPARED WITH U. S.

Month	Atlanta		U. S.
	Number Unemployed	% of Labor Force	% of Labor Force
1959 December	16,700	3.9	5.2
1960 January	15,700	3.7	6.1
February	15,650	3.7	5.7
March	16,200	3.9	6.1
April	14,300	3.4	5.2
May	13,500	3.2	4.9
June	16,150	3.8	6.1
July	18,000	4.3	5.5
August	19,000	4.5	5.3
September	16,200	3.8	4.8
October	14,300	3.4	5.0
November	17,350	4.1	5.7
December	18,000	4.2	6.4
1961 January	22,500	4.9	7.7
February	24,800	5.4	8.1

Source: *Atlanta Area Labor Market Trends*, Georgia State Employment Service; and *Survey of Current Business*.

## February 1961

### ATLANTA AREA ECONOMIC INDICATORS

	February 1961	January 1961	% Change	February 1960	% Change	% Change 2 months '61 over 2 months '60
<b>EMPLOYMENT</b>						
Job Insurance (Unemployment)						
Payments .....	\$836,667	\$699,076	+19.7	\$402,625	+107.8	+94.9
Job Insurance Claimants .....	13,434	11,669	+15.1	7,829	+71.6	+64.7*
Total Non-Ag. Employment .....	361,000	363,550r	-0.7	365,300r	-1.2	-1.0*
Manufacturing Employment .....	81,550	83,000r	-1.7	87,650r	-7.0	-6.3*
Average Weekly Earnings,						
Factory Workers .....	\$81.33	80.52	+1.0	\$79.72	+2.0	-0.7*
Average Weekly Hours,						
Factory Workers .....	39.1	38.9	+0.5	38.7	+1.0	-1.1*
Index of Help Wanted Ads (Seasonally adjusted, 1947-49 Avg.=100) .....	128.3	124.6	+3.0	169.1	-24.1	-27.2
<b>CONSTRUCTION</b>						
Number of Building Permits\$ .....	658	704	-6.5	614	+7.2	+16.4
Value of Building Permits\$ .....	\$5,491,285	\$7,559,383	-27.4	\$4,453,632	+23.3	+9.2
Employees .....	21,250	21,300r	-0.2	19,850r	+7.1	+6.6*
<b>FINANCIAL†</b>						
Bank Debits (Millions) .....	\$1,882.5	\$2,170.8	-13.3	\$1,982.8	-5.1	+0.5
Bank Deposits (Millions) .....	\$1,368.4	\$1,350.3	+1.3	\$1,253.3	+9.2	+8.1*
<b>OTHER</b>						
Department Store Sales Index .....	164	158	+3.8	173r	-5.2	-7.5††
Retail Food Price Index .....	117.9	118.1	-0.2	114.1	+3.3	+3.2**
Number of Telephones in Service....	384,414	384,716	-0.1	365,019	+5.3	+5.7**

r—Revised

\$City of Atlanta only

\*Average month

\*\*End of period

†—Based on retail dollar amounts

† Data from members of the Federal Reserve System only

Sources: All data on employment, unemployment, hours, and earnings: Employment Security Agency, Georgia Department of Labor; Number Help Wanted Ads: Atlanta Newspapers, Inc.; Building permits data: Office of the Building Inspector, Atlanta, Georgia; Financial data: Board of Governors, Federal Reserve System; Retail Food Price Index: U. S. Department of Labor; Department Store Sales Index: Federal Reserve Bank of Atlanta and Board of Governors, Federal Reserve System; Telephones in Service: Southern Bell Telephone and Telegraph Company.

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